Warta IHP/*Journal of Agro-Based Industry*
Vol. 26 No. 2, Desember 2009, pp 1 – 12

Penelitian / *Research*

ANALISIS KANDUNGAN SENYAWA PYROLIZIDIN DALAM HASIL OLAHAN KERING TEH HERBAL DAUN DEWA (*Gynura pseudochina* (Lour.) DC).

Analysis for Pyrolizidine contents in Dried Herbal Tea of Daun Dewa (*Gynura pseudochina* (Lour.)DC).

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ABSTRACT *: Dewa leaf (Gynura pseudochina (Lour.) DC) often used as herbal tea due to its benefit in reducing blood glucose content. One of the active compound in dewa leaf is pyrrolizidine alkaloid. which is active strongly against tumor. The aim of this research was to identify the active compound of pyrrolizidine in leaves of dewa green tea, black tea and dry powder which are resulted from the experiment. The Analysis of pyrolizidine was done by quantitative and qualitative methods. The separation method used for the pyrrolizidine compounds was thin layer chromatography using methanol:water (85:15) as developing solvent. The determination of pyrrolizidine content was done by TLC Scanner. The result showed that the Rf value of pirolyzidine compound in leaf of dewa green tea is 0.34 relatively equal to the pyrrolizidine standard (0.36). While the Rf value of pirolyzidine compound in leaves of dewa black tea and dry powder was 0.42 and 0.41, significantly different from pyrrolizidine standard. The pyrrolizidine compound in leaves of dewa black tea and dry powder could not be detected quantitavely by TLC Scanner because its concentration was too small, where as in leaf of dewa green tea the pyrrolizidine compound was detected 0.005%.. So, it could be concluded that the contents of pyrrolizidine compound in leaf of dewa green tea was higher than pyrolizidine content in black tea and dry powder of dewa leaf..*

Keywords : *dewa leaf, green tea, black tea, dry powder, pirolizidine, TLC Scanner*

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PENGARUH TINGKAT KONSENTRASI OLEORESIN DAN KOMPOSISI PENYALUT TERHADAP KARAKTERISTIK MIKROENKAPSULASI OLEORESIN LADA MENGGUNAKAN *SPRAY DRYING*

The Effect of Oleoresin Concentration Level and Material Compositions for Encapsulating on the Properties of Microencapsulated Pepper Oleoresin by Using Spray Drying

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ABSTRACT*: Research on the effect of black pepper oleoresin concentration and encapsulating material compositions on the properties of microencapsulated pepper oleoresin has been conducted. Oleoresin was extracted from dried black pepper with ethanol using percolation technique and it was encapsulated in malto-dextrin and sodium caseinate using spray drying equipment. Experiments were performed using complete randomized factorial experimental design with two factors. Factor A oleoresin concentration; i.e. A_1 = 10%, A_2 = 15% and A_3 = 20% and factor B are maltodextrin to sodium caseinate ratio, i.e. B_1 = 90 : 10 and B_2 = 75 : 25. The yield, volatile oil retention, piperine content and moisture content were evaluated. It was found that higher solid concentration will increase the retention of volatile oil and piperine content. The best microcapsule properties was obtained from microcapsules product containing oleoresin 10% and malto-dextrin and sodium caseinate at the ratio of 75 : 25 with the yield of 68.75%, volatile oil retention of 2.25%, piperine content of 3.21% and moisture content of 3.75%.*

Keywords : *Pepper, oleoresin, micro-encapsulation, spray drying*.

Warta IHP/*Journal of Agro-Based Industry*
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INTERESTERIFIKASI ENZIMATIK DENGAN LIPASE PADA CAMPURAN MINYAK SAWIT MERAH DAN MINYAK KELAPA UNTUK MENGHASILKAN BAHAN BAKU *SPREADS* KAYA β-KAROTEN

Lipase Catalyzed Interesterification of Red Palm Oil and Coconut Oil Blends to Produce β-Carotene Riched Raw Spreads

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ABSTRACTS: *Red palm oil has several characteristics which is very suitable for raw spread, especially their high carotenoid contents which have many advantages for human health. Enzymatic interesterification (IE) with saturated and middle-long chain fatty acid (coconut oil) is one of the effective ways to improve their physical properties. The objective of this research was to obtain the best formulation of red palm oil and coconut oil blends which have the most similar characteristics with raw spreads commercial and have high β-carotene content. The stage in this research were (1) Chemical properties analysis from Crude Palm Oil (CPO), including water content, free fatty acid, peroxide value, iod value, and carotenoid total, (2) Refining and chemical properties analysis of Neutralized Red Palm Oil (NRPO), including water content, free fatty acid, peroxide value, iod value, and carotenoid total, (3) Fractionation of Neutralized Red Palm Oil (NRPO), (4) Enzymatic interesterification and physicochemical properties analysis, including slip melting point (SMP), carotenoid total, solid fat content (SFC), and fat crystallization behaviour. The results showed that products of enzymatic interesterification such as SMP and SFC profiles were higher than without enzymatic interesterification treatment, carotenoid total was not change significantly, and the crystal sizes were larger than treatment before. Enzymatic interesterification results very significant changing on physical properties from NRPO and Rpo and still have high total carotenoid. Formulation of (Rps/Rpo)/CNO with ratio 75:25, 77,5:12,5 and 82,5:17,5 b/b had most similar physical properties with profile raw spreads retail and industry. SMP value of three ratio already included in SMP commercial spreads range that are 32,63; 33,60 and 34,86 °C. After enzymatic interesterification process, total carotenoid only decreased 1,85; 2,97 and 2,93% (363,16; 378,21 and 392,81 ppm become 356,43; 366,72 and 381,32 ppm), and SFC profile on 20, 30 and 40 °C were similar with SFC profile raw spreads retail and industry.*

Key words: red palm oil, β-carotene, enzymatic interesterification, spread, Lipozyme TL IM, coconut oil

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ANALISIS KATEKIN DAN EPIKATEKIN DALAM BIJI KAKAO SERTA PRODUK OLAHANNYA MENGGUNAKAN KROMATOGRAFI CAIR SPEKTROMETRI MASSA

Catechin and Epicatechin Analysis in Cacao Bean and Cacao Products Using Liquid Chromatography Mass Spectrometry

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ABSTRACTS : *Cacao beans processing into cacao products may affect active compound contents in the final products, especially catechin and epicatechin. Temperature treatments during cacao processing can induce epimerization reaction of (-)-epicatechin to be (-)-catechin. Therefore, catechin and epicatechin ratio in the samples would be change. The aim of the research was to know the influence of temperature during cacao beans processing, especially catechin and epicatechin concentration. Samples taken during the process were cacao nib, cacao mass, cacao powder, and cacao butter. Analysis of catechin and epicatechin in samples was carried out by liquid chromatography mass spectrometry. Analytical conditions for catechin and epicatechin were using mobile phase A (0.1 % formic acid in deionized water) and mobile phase B (acetonitril-methanol = 50:50) at flow rate of 0.5 ml/min. Gradient elution were set at 0 minutes (10% B), 15 minutes (35% B), 20 minutes (40% B), 30 minutes (50% B), 35 minutes (60% B), and 35.1 minute (10% B). Mass spectrometer was set at ESI voltage (-) 3500 volt, desolvation temperature 300 °C, nebulizer pressure 50 psi, desolvation gas 10 L/min, and fragmentor voltage (-) 160 volt. Results of the research showed that ratio of catechin and epicatechin in cacao nib, cacao mass and cacao powder were 1:21,7; 1:20,0; and 19,3 respectively. Heat treatments during cacao mass processing showed a decrease tendency of catechin and epicatechin concentrations.*

Key words : analysis, catechin and epicatechin, cacao processing

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Ulasan Ilmiah/*Review*

PENGEMBANGAN DAN INNOVASI TENOLOGI PANGAN UNTUK MENGHASILKAN PRODUK PANGAN KESEHATAN DAN PROSPEK PASARNYA

Developments and Innovations of Food Technology to Produce of Health Food Products and Its Market Prospect

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ABSTRACT: *In recently years, the increase cause of the illness related life style, such as diabetes mellitus and obesity, cardiovascular and cancer diseases, have been characterized as social issues which leads to the loss of quality of life and increases in medical care expenses. On the other hand, to make a guarantee to extend the length of a healthy life expecting in an aging society is significant social issue in the world. Consequently, modern nutritional science was needed to provide ever more information on the functions and mechanisms of specific food components in health promotion and/or diseases prevention. Recent innovations in food technologies have led to the use of many traditional technologies, such as fermentation, extraction, encapsulation, fat replacement, and enzyme technology, to produce new health food ingredients, reduce or remove undesirable food components, add specific nutrient or functional ingredients, modify food compositions, mask undesirable flavors or stabilize ingredients. Modern biotechnology has also changed fundamentally the way foods are created; meanwhile nanotechnology is also beginning to find potential applications in the area of food and agriculture. In the global marketplace food products for health, especially functional food and netraceuticals have become a multi-billion dollar industry and development of food products for health with distinctive genetic and ecotype traits has potential to deliver unique products to the world was large quantity. This paper offers a brief overview of the developments and innovations of the food products for health with technologies involved in ingredient modifications, protecting ingredient and controlling delivery. Furthermore, it discusses the prospects of these food products currently in the market.*

Keywords : Developments, innovations, food technology, food trends, nutrition, health, ingredients, market.